IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A device for measuring dynamic matrix sensitivity of an inertia sensor, comprising:

a motion generating machine for inducing <u>a motion including at least one of</u> a translational motion <s>or</s> <u>and</u> a <s>rotary</s> <u>rotational</u> motion<u>, wherein a degree of freedom of the motion is N ($1 \leq N \leq 6$, and N is an integer)</u>;

<u>a unit subject to calibration provisionally fixed on a table of the motion generating machine, constituted by at least one of</u> an acceleration measuring unit, an angular velocity measuring unit <s>or</s> <u>and</u> an angular acceleration measuring unit <s>that is a unit at least provisionally fixed on the motion generating machine and subject to calibration</s>, <u>wherein a degree of freedom of detection is M ($1 \leq M \leq 6$, and M is an integer)</u>;

output means for fetching an output from the unit subject to calibration;

one or more light reflectors;

a displacement measuring unit enabled to grasp a multidimensional motion by using a laser interferometer formed by irradiating the one or more light reflectors with laser beams from as many directions;

a <s>data</s> processing unit for <s>processing</s> <u>calculating an M×N dynamic sensitivity matrix $S_{p,q}(\omega)$ of the unit subject to calibration based on an output from the unit subject to calibration when the motion generating machine is vibrated by a vibration vector ($a_{i,x1}(j\omega t)$, $a_{i,x2}(j\omega t)$, ..., $a_{i,xN}(j\omega t)$)) ($1 \leq i \leq N$, j is an imaginary unit, $\omega = 2\pi f$, and f is a frequency of vibration) and</u> a data indicating a state of <u>the</u> multidimensional motion <s>and</s> obtained from the displacement measuring unit <s>and converting the multidirectional translational motion or multidimensional rotary motion into values in a predetermined coordinate system</s>; and

displaying means to display or a transmitting means to transmit an output of the ~~data~~

processing unit and output of the ~~acceleration measuring unit, angular velocity measuring~~

~~unit or angular acceleration measuring unit that is the~~ unit subject to calibration.

Claim 2 (Original): A device according to claim 1, wherein the motion generating

machine generates a periodical motion.

Claim 3 (Currently Amended): A device according to claim 1, wherein the motion

~~producing~~ generating machine generates a motion of pulse function nature.

Claim 4 (Original): A device according to claim 3, further comprising:

first converting means for finding a Fourier component on a frequency axis of the

motion of the nature of pulse function;

second converting means for finding a Fourier component on a frequency axis of an

output of the acceleration measuring unit, angular velocity measuring unit or angular

acceleration measuring unit that is the unit subject to calibration; and

means for finding from respective outputs of the first and the second converting

means a frequency characteristic of correction of the acceleration measuring unit, angular

velocity measuring unit or angular acceleration measuring unit that is the unit subject to

calibration and displaying or transmitting the frequency characteristics.

Claim 5 (Previously Presented): A device according to claim 1, wherein the motion

generating machine is capable of producing a random motion.

Claim 6 (Currently Amended): A device according to claim 3, further comprising:

first converting means for finding a Fourier component on a frequency axis of the random motion[[,]];

second converting means for finding a Fourier component on a frequency axis of an output of the acceleration measuring unit, angular velocity measuring unit or angular acceleration measuring unit that is the unit subject to calibration[[,]]; and

means for finding from respective outputs of the first and the second converting means a frequency characteristics of calibration of the acceleration measuring unit, angular velocity measuring unit or angular acceleration measuring unit that is the unit subject to calibration and displaying or transmitting the frequency characteristics.

Claim 7 (Currently Amended): A device according to any of claim 1, wherein the motion generating machine is provided with an accelerometer for controlling vibration motion and a feedback circuit for controlling a drive unit for enabling a signal from the sensor thereof to assume a value determined in advance.

Claim 8 (Original): A device according to claim 5, wherein the accelerometer is provided with dynamic matrix sensitivity, and feedback control thereof estimates an input vector from an output vector of the accelerometer by using the dynamic matrix sensitivity.

Claim 9 (Currently Amended): A device according to claim 8, further comprising:

means for finding an error from respective outputs of the data processing unit and the acceleration measuring unit, angular velocity measuring unit or angular acceleration measuring unit that is the unit subject to calibration and displaying the error or means; or

means for finding the error and transferring a value of the error.

Claim 10 (Currently Amended): A device for measuring dynamic matrix sensitivity of an inertia sensor, comprising:

a motion generating machine for inducing a translational motion or a ~~rotary~~ rotational motion[[,]];

an acceleration measuring unit, angular velocity measuring unit or angular acceleration measuring unit that is a unit at least provisionally fixed on the motion generating machine and subject to calibration[[,]];

output means for fetching an output from the unit subject to calibration[[,]];

an inertia sensor capable of seizing a multidimensional motion calibrated in advance by the use of the device for measuring dynamic matrix sensitivity of an inertia sensor set forth in claim 1[[,]];

a data processing unit for processing a data indicating a state of the multidimensional motion and obtained from the inertia sensor and converting the multidirectional translational motion or the multidimensional ~~rotary~~ rotational motion into values in a predetermined coordinate system[[,]]; and

displaying means to display or a transmitting means to transmit respective output of the data processing unit and the acceleration measuring unit, angular velocity measuring unit or angular acceleration measuring unit that is the unit subject to calibration.

Claim 11 (Previously Presented): A device according to claim 1, further comprising:

direction means for rendering an angle of disposition of the acceleration measuring unit, angular velocity measuring unit or angular acceleration measuring unit that is the unit subject to calibration variable relative to a gravitational direction; and

means for obtaining an output from the unit subject to calibration and temporarily fixed in a plurality of directions relative to the gravitational direction, finding dynamic matrix

sensitivities with respect to the plurality of directions and estimating dynamic matrix

sensitivity deprived of an influence of gravitational force from the plurality of dynamic

matrix sensitivities.

Claim 12 (Currently Amended): A device according to claim 1, wherein the unit

subject to calibration is an acceleration measuring unit, angular velocity measuring unit or

angular acceleration measuring unit possessing an output only in a one-axis direction, and the

motion generating machine for inducing a translational motion or ~~rotary~~ rotational motion is a

motion generating machine enabled to move with a plurality of degrees of freedom.

Claim 13 (Previously Presented): A device according to claim 1, wherein the device

for measuring the dynamic matrix sensitivity of an inertia sensor is wholly installed in a room

capable of intercepting sound or vibration from outside the room, the acceleration measuring

unit that is the unit subject to calibration is a seismometer, and the motion generating

machine generates a motion of pulse or cyclic function nature and imparts fine vibration in an

vibration frequency band and a seismic zone detectable by the seismometer.

Claim 14 (Previously Presented): A device according to claim 1, wherein the motion

generating machine is a motion generating machine generating a random motion and imparts

vibration in a vibration frequency band detectable by an inertia sensor used for constantly

detecting fine vibration of a vibro-isolating common table, and the motion generating

machine or the table is provided with cooling means or a thermostatic unit.

Claim 15 (Previously Presented): A device according to claim 1, wherein the motion

generating machine is a motion generating machine which imparts vibration in a vibration

frequency band detectable by an accelerometer used for controlling an automobile suspension or an accelerometer used for controlling an automobile passenger protecting airbag, the acceleration measuring unit that is the unit subject to calibration is an accelerometer used for controlling an automobile suspension or an accelerometer used for controlling an automobile passenger protecting airbag, and the acceleration measuring unit that is the unit subject to calibration is provided with a temperature controlling unit for controlling an temperature environment of the acceleration measuring unit.

Claim 16 (Currently Amended): A device according to claim 1, wherein the motion generating machine is a motion generating machine which simultaneously generates a motion of pulse or cyclic function nature and a motion comprising a translational motion and a ~~rotary~~ rotational motion and emits vibration in a vibration frequency band detectable by an inertia sensor used for controlling a motion of a robot, the acceleration detecting unit that is the unit subject to calibration is an inertia sensor used for controlling a motion of a robot, and the acceleration measuring unit that is the unit subject to calibration is provided with a temperature controlling unit for controlling a temperature environment of the acceleration measuring unit.

Claim 17 (Previously Presented): A device according to claim 1, wherein the motion generating machine is a motion generating machine which imparts vibration in a vibration frequency band detectable by an inertia sensor used for measuring a motion of a human body, vibration imparted to a human body or an animal behavior monitor, and the acceleration measuring unit that is the unit subject to calibration is a distributed accelerometer serving as an inertia sensor used for measuring a motion of a human body, a vibration imparted to a

human body or an animal behavior monitor and is provided with multi-channel signal output

terminals for emitting a signal of the distributed accelerometers.

Claim 18 (Currently Amended): A device according to claim 10, wherein the motion

generating machine for inducing a translational motion or a ~~rotary~~ rotational motion generates

a motion along one axis, the acceleration measuring unit, angular velocity measuring unit or

angular acceleration measuring unit that is a temporarily fixed unit subject to calibration

possesses an output in only one axis, and the output from the unit subject to calibration is

provided with a multi-axis output.

Claim 19 (Currently Amended): A method for measuring dynamic matrix sensitivity

of an inertia sensor, comprising the steps of:

forming in the device set forth in claim 1 a setup wherein an output vector having an

output value of N axes as a component is expressed by a product of the dynamic matrix

sensitivity multiplied by an input vector having states of motion of the motion generating

machine as components on the assumption that the displacement measuring means produces

outputs in different N axes, ~~that a degree of freedom of the motion of the motion generating~~

~~machine is a natural number M of not more than 6~~ and that the numbers M and N do not

satisfy M x N = 1; and

dividing the M degrees of freedom into a plurality of groups allowing duplication,

1) finding by measurement the output vector for the input vector with respect to each

of the groups,

2) converting and unifying the output vectors enabled to correspond to the input

vectors having M degrees of freedom, and subsequently

3) finding dynamic matrix sensitivity from the correspondence of the output vectors to the unified input vectors.

Claim 20 (Currently Amended): A device according to claim 1, further comprising means for multiplying a filter matrix corresponding to a ~~reverse~~ <u>inverse</u> matrix of the matrix sensitivity by a vector comprising an output from the accelerometer to enable measurement precision of the accelerometer to be enhanced.